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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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BUREAU OF AIR QUALITY CONTROL

**CHAPTER 118: GASOLINE DISPENSING FACILITIES VAPOR CONTROL**

**SUMMARY:** This regulation requires control of gasoline vapors emitted during the transfer of gasoline from tank trucks to stationary gasoline storage tanks (Stage I) and from the refueling of automobiles (Stage II) at gasoline dispensing facilities.

1. Scope/Applicability

A. Geographic

1. The Stage I provisions of this regulation apply to any gasoline dispensing facility that is located in the State of Maine.
2. The Stage II provisions of this regulation shall apply to any gasoline dispensing facility located in York, Cumberland, and Sagadahoc counties.

NOTE: If the State of Maine adopts and implements a motor vehicle emissions inspection program pursuant to the Clean Air Act Section 184(b)(A), the Department will propose appropriate amendments to this rule.

B. Applicability

1. Any gasoline dispensing facility whose monthly throughput ever exceeds the initial applicability threshold of 10,000 gallons per month shall become subject to all of the Stage I provisions of this regulation and shall remain subject even if its monthly throughput later falls below 10,000 gallons per month. The initial applicability threshold for each gasoline dispensing facility is based on the monthly throughput of any month during the two (2)-year period before the applicable compliance date specified in Section 5 of this Chapter. Any gasoline dispensing facility, regardless of throughput, shall be subject to the requirements of Sections 3(A) and 9(B) of this Chapter.
2. Any gasoline dispensing facility whose annual throughput ever exceeds the initial applicability threshold of 1,000,000 gallons per year shall become subject to all of the Stage II provisions of this regulation and shall remain subject even if its annual throughput later falls below 1,000,000 gallons per calendar year. The

initial applicability threshold for each gasoline dispensing facility is based on the annual throughput during the calendar year of 1994.

## 2. Definitions.

Unless specifically defined in state law, this Chapter, or other regulations of the Department, the terms used in this Chapter shall have the meanings commonly ascribed to them in the field of air pollution control. In addition to the terms which are defined by Chapter 100, as amended, of the Department's regulations (relating to definitions regulations), the following terms when used in this Chapter shall have the following meanings, unless the context clearly indicates otherwise:

A. Approved Stage II vapor recovery system. "Approved Stage II vapor recovery system" means a Stage II vapor recovery system that has demonstrated 95 percent by weight or greater Volatile Organic Compound (VOC) control efficiency by:

1. Being a CARB certified system,
2. Being tested and approved using CARB's recognized testing methods, or
3. Meeting the requirements of equivalent testing procedures and methods approved by the Department and the United States Environmental Protection Agency (EPA).

Aftermarket and rebuilt parts may be included as part of the Stage II vapor recovery system provided they are CARB-approved aftermarket and rebuilt parts.

The system shall utilize coaxial hoses at the dispensers and shall not contain any components (e.g., remote vapor check valves in balance type systems) that would significantly impede the performance of the functional tests required in Section 7.

B. CARB. "CARB" means the California Air Resources Board, Sacramento, CA 95812.

C. Gasoline dispensing facility. "Gasoline dispensing facility" means any site where gasoline is transferred from a stationary storage tank to a motor vehicle fuel tank used to provide fuel to the engine of that motor vehicle.

D. Stage I vapor balance system. "Stage I vapor balance system" means the appropriate fittings and connectors at both the gasoline dispensing facility and the tank truck that completes a closed vapor loop when the tank truck receives gasoline from or delivers gasoline to the stationary storage tank of a gasoline dispensing facility. A closed vapor loop includes a vapor tight line from the tank truck to the stationary gasoline storage tank

of a gasoline dispensing facility and a connection system that will not allow delivery of gasoline to the stationary gasoline storage tank of a gasoline dispensing facility unless there is a vapor tight connection.

E. Stage II vapor recovery system. "Stage II vapor recovery system" means a system that limits the discharge to the atmosphere of gasoline vapors displaced during the dispensing of gasoline into motor vehicle fuel tanks.

3. Standards for Stage I Vapor Balance System

A. Unless a submerged fill pipe extends into the stationary gasoline storage tank to within six (6) inches of the bottom of the stationary gasoline storage tank, no owner or operator of any gasoline dispensing facility shall transfer or permit the transfer of gasoline into a stationary gasoline storage tank at the gasoline dispensing facility.

B. No owner or operator of any gasoline dispensing facility shall transfer or permit the transfer of gasoline into a stationary gasoline storage tank with a capacity of 250 gallons or more unless:

1. A Stage I vapor balance system has been properly installed and ensures a closed vapor loop between the tank truck and the stationary gasoline storage tank at the gasoline dispensing facility. The Stage I vapor balance system shall be designed such that the back pressure in the tank truck does not exceed eighteen (18) inches of water pressure or six (6) inches of water vacuum during product transfer;

2. If a gauge well separate from the fill tube is used, a submerged fill pipe is provided that extends into the stationary gasoline storage tank to within six (6) inches of the bottom of the stationary gasoline storage tank; and

3. Liquid fill connections for all systems are equipped with vapor-tight caps.

C. No owner or operator of a tank truck shall transfer or permit the transfer of gasoline into the stationary gasoline storage tank of a gasoline dispensing facility unless:

1. All hoses in the Stage I vapor balance system are properly connected;

2. Closures that seal upon disconnect are installed on the adapters or couplers that attach to the vapor line on the stationary gasoline storage tank of a gasoline dispensing facility;

3. All vapor return hoses, couplers, and adapters used in the gasoline delivery are

vapor tight such that a reading of 100% or more of the lower explosive limit (LEL), (measured as 2.2% propane or equivalent calibration gas by volume of air) are not obtained within one (1) inch around any potential source of a leak and there are no visible or audible liquid or vapor leaks in the vicinity of the gasoline unloading;

4. All hatches on the gasoline tank truck are closed and securely fastened;

5. The filling of stationary gasoline storage vessels at gasoline facilities are limited to the unloading of gasoline from vapor-tight tank trucks which are certified as vapor-tight pursuant to Chapter 120 of the Department's regulations (relating to gasoline tank truck tightness self-certification); and

6. All tank truck vapor return equipment is compatible with the Stage I vapor balance system installed on the stationary gasoline storage tank of the gasoline dispensing facility.

4. Standards for Stage II Vapor Recovery System

A. No owner or operator shall transfer, permit the transfer, or provide equipment for the transfer of gasoline from a stationary storage tank at a gasoline dispensing facility into a motor vehicle fuel tank unless a Stage II vapor recovery system is installed and is continuously used during the transfer of gasoline from the gasoline storage tank to the motor vehicle fuel tank.

NOTE: Any modifications to underground tanks and pipes are required to be conducted by a tank installer certified pursuant to Department Regulation Chapter 691, Registration, Installation, Operation and Closure of Underground Oil Storage Facilities.

B. The owner or operator shall maintain the Stage II vapor recovery system in proper operating condition as specified by the manufacturer and free of defects that would impair the effectiveness of the system. For the purposes of this section, the following is a list of equipment defects in Stage II vapor recovery systems that substantially impair the effectiveness of the systems in reducing refueling vapor emissions:

1. Absence or disconnection of any component that is a part of the approved system;

2. A vapor hose that is crimped or flattened such that the vapor passage is blocked, or the pressure drop through the vapor hose exceeds by a factor of two (2) or more the value as certified in the approved system;

3. A nozzle boot that is torn in one or both of the following ways:
  - a. A triangular-shaped or similar tear more than 1/2 inch on a side, or a hole more than 1/2 inch in diameter, or
  - b. A slit more than one (1) inch in length.
4. Faceplate or flexible cone which is damaged in the following manner:
  - a. For balance nozzles and for nozzles for aspirator and educator assist type systems, damage shall be such that the capability to achieve a seal with a fill pipe interface is affected for 1/4 of the circumference of the faceplate (accumulated), or
  - b. For nozzles for vacuum-assist type systems, more than 1/4 of the flexible cone is missing.
5. A nozzle shutoff mechanism that malfunctions in any manner;
6. Vapor return lines, including such components as swivels, anti-recirculation valves, and underground piping, that malfunction or are blocked, or are restricted such that the pressure drop through the line exceeds by a factor of two (2) or more the value as certified in the approved system;
7. A vapor processing unit that is inoperative;
8. A vacuum-producing device that is inoperative; or
9. Pressure/vacuum relief valves, vapor check valves, or dry breaks that are inoperative.

C. All Stage II vapor recovery systems and gasoline dispensing equipment shall be maintained to have no leaks.

D. Upon identification of any of the defects described in Section 4(B) of this Chapter by the owner or operator, or compliance inspector, the owner or operator shall tag "Out-of-Order" all gasoline dispensing equipment for which vapor recovery has been impaired. The tagged equipment shall not be used and the tag(s) shall not be removed until the defective equipment has been repaired, replaced, or adjusted, as necessary.

E. Any component of the Stage II vapor recovery system identified as defective, but which does not substantially impair the effectiveness of the system as described in Section 4(B) of this Chapter, may remain in operation, but shall be repaired or replaced

within fifteen (15) days after such identification.

F. No owner or operator shall:

1. Repair, modify, or permit the repair or modification of the Stage II vapor recovery system or its components such that they are different from their approved configuration, except as approved in advance by the Department; or
2. Tamper with, or permit tampering with, the system in a manner that would impair the operation or effectiveness of the system.

G. No owner or operator shall tamper with or permit tampering with any component of the Stage II vapor recovery system.

5. Compliance Schedule For Stage I Vapor Balance Systems

A. Gasoline dispensing facilities subject to the requirements of Section 3(A) of this Chapter shall comply with the following schedule for installation of submerged fill pipes:

1. October 1, 1989, for gasoline dispensing facilities with underground gasoline storage tanks that have an annual throughput of more than 100,000 gallons of gasoline; and
2. May 31, 1995 for all other gasoline dispensing facilities.

B. Gasoline dispensing facilities subject to the requirements of Sections 3(B) and 3(C) of this Chapter shall comply with the following schedule for installation and operation of a Stage I vapor balance system:

1. October 1, 1989, for gasoline dispensing facilities with underground gasoline storage tanks that have an annual throughput of more than 250,000 gallons of gasoline and that are replacing a tank scheduled for removal by October 1, 1989 (pursuant to 38 M.R.S.A. Section 563-A);
2. October 1, 1991, for gasoline dispensing facilities with underground gasoline storage tanks that have an annual throughput of more than 250,000 gallons of gasoline;
3. May 31, 1995, for all other gasoline dispensing facilities that have a monthly throughput of more than 10,000 gallons of gasoline.

C. Each owner or operator of a gasoline dispensing facility that is initially exempt from

the requirements of Sections 3(B) and 3(C) of this Chapter and that becomes subject to this regulation under the provisions of Section 1(B)(1) of this Chapter shall install and place into operation a Stage I vapor balance system within six (6) months of the date it notified, or was required to notify, the Department in accordance with Section 9(B) of this Chapter.

6. Compliance Schedules For Stage II Vapor Recovery Systems

A. Gasoline dispensing facilities subject to the requirements of Section 4 of this Chapter shall install and place into operation a Stage II vapor recovery system on or before November 15, 1996.

B. Each owner or operator of a gasoline dispensing facility that is initially exempt from the requirements of Section 4 of this Chapter and that becomes subject to this regulation under the provisions of Section 1(B)(2) of this Chapter shall install and place into operation a Stage II vapor recovery system within six (6) months of the date it notified, or was required to notify, the Department in accordance with Section 9(B) of this Chapter.

7. Testing for Stage II Vapor Recovery Systems

A. Once the Stage II vapor recovery system is in operational condition and ready for use, testing to verify the proper installation and function of the entire system (both infrastructure plumbing and aboveground equipment) shall be conducted. Tests shall be conducted in accordance with the following test procedures as found in Appendix J of the EPA document, Technical Guidance - Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities, Vol. II (EPA-450/3-91-022b), November 1991:

1. Bay Area Source Test Procedure ST-30, Leak Test Procedure, or San Diego Test Procedure TP-91-1, Pressure Decay/Leak Test Procedure;
2. Bay Area Source Test Procedure ST-27, Dynamic Back Pressure, or San Diego Test Procedure TP-91-2, Pressure Drop vs. Flow/Liquid Blockage Test Procedure;
3. Bay Area Source Test Procedure ST-37, Liquid Removal Devices;
4. Vapor Space Tie Testing; and
5. All other related tests for auto shutoff and flow prohibiting mechanisms, as necessary.

B. The owner or operator shall notify the Department in writing at least five (5) days in

advance as to when the testing will occur and what party will conduct the testing. The Department may observe the test at its discretion.

C. Reverification of the proper installation and function of the Stage II vapor recovery system as described in Section 7(A) shall be performed at least every five (5) years or upon major system replacement or modification, whichever occurs first. Functional tests shall also be performed within 30 days upon request by the Department when inspections, records, or other evidence show noncompliance with the regulation. This reverification shall include a leak check test and all other functional tests that were required for the initial system certification. A major system replacement or modification is considered to be the occurrence of any of the following:

1. The repair or replacement of any stationary source tank with a Stage II vapor recovery system;
2. The repair or replacement of any part of an underground piping system attached to a stationary storage tank equipped with a Stage II system, excluding repairs which occur without excavation; or
3. The replacement of a Stage II system of one certified configuration with a Stage II system of a different certified configuration.

8. Training and Public Education

A. Each owner or operator of a gasoline dispensing facility subject to this regulation shall, in accordance with the compliance schedules provided for in Section 6 of this Chapter, ensure that at least one facility representative receives training and instruction in the operation and maintenance of the Stage II vapor recovery system by successfully completing a training course approved by the Department. Any company with more than one gasoline dispensing facility may have a single individual, who would represent all the company's facilities, receive the training. This facility or company representative shall instruct current and future facility employees concerning the purposes and correct operating procedures of the system. Every facility shall have at least one individual on-site during operating hours who has received training from the facility or company representative.

The required training for the facility or company representative shall be completed no later than three (3) months after the initiation of operation of the facility's Stage II vapor recovery system, although it is preferable that the facility or company representative obtain the training prior to the initiation of operation of the system. If the facility or company representative who received the training leaves that facility, another facility or company representative shall successfully complete the required training within three (3) months after departure of the originally trained employee. Training shall include, but

need not be limited to, the following areas:

1. Purposes and effects of the Stage II vapor recovery systems,
2. Equipment operation and function specific to that gasoline dispensing facility's Stage II vapor recovery system,
3. Maintenance schedules and requirements for the gasoline dispensing facility's Stage II vapor recovery system,
4. Equipment warranties, and
5. Equipment manufacturer contacts (names, addresses, and phone numbers) for parts and service.

B. Each owner or operator shall post operating instructions conspicuously on the front of each gasoline dispensing pump using a Stage II vapor recovery system. These instructions shall, at a minimum, include:

1. A clear description of how to correctly dispense gasoline using the system,
2. A warning not to attempt continued refueling after automatic shutoff of the system (an indication that the vehicle fuel tank is full), and
3. A telephone number to be used to report to the Department any problems experienced with the system.

9. Recordkeeping and Reporting

A. All permits, licenses or registrations to operate the facility shall be current at all times. Except as provided in Section 9(A)(4), the records listed below shall be maintained at each facility for three (3) years with the exception of records specified in Section A(1) which shall be maintained at each facility for five (5) years. All records shall be made available for inspection during normal business hours and copies provided to the Department and/or EPA upon request.

1. Verification that the Stage II vapor recovery system meets or exceeds the requirements of the tests specified in Section 7 of this Chapter. The test results shall be dated and shall contain the names, addresses, and phone number of the companies responsible for system installation and testing.

2. All maintenance conducted on any part of the Stage II vapor recovery system shall be logged on a maintenance record and maintained in chronological order. This maintenance record shall include a general part description, the date repaired or replaced, the replacement part number, a general description of the part location in the system, and a description of the problem. The log shall also indicate the time period and duration of each malfunction of the system.

3. Proof of attendance and completion of the training specified in Section 8(A) of this Chapter shall be maintained on the gasoline dispensing facility premises. The documentation for each employee shall be maintained as long as that employee continues to work at the facility.

4. Any company with more than one gasoline dispensing facility may maintain Stage II records at its central office. However, if a company chooses to maintain its records in its central office, each gasoline dispensing facility must as a minimum, maintain the following on the premises;

- a. the verification records referred to in Section 9(A)(1) shall be kept at the facility for twelve months after the date of test results;
- b. the last twelve month period of maintenance records referred to in Section 9(A)(2); and
- c. the documentation for the last twelve month period of the employee(s) trained for that facility.

B. Beginning July 1, 1989 all gasoline dispensing facilities shall maintain on its premises, records of gasoline throughput which will allow the monthly and annual throughput to be determined. Any such facility whose monthly or annual throughput ever exceeds the initial applicability threshold shall notify the Department of its applicability within thirty (30) days. Copies of these records shall be maintained for a minimum of three (3) years. These records shall be available for inspection during normal business hours and copies shall be provided to the Department and/or EPA upon request.

Any company with more than one gasoline dispensing facility may maintain the records of gasoline throughput at its central office. However, each gasoline dispensing facility of the company must maintain records on the premises for the last 12-month period.

10. Registration of Stage II Vapor Recovery Systems

A. Within thirty (30) days after the installation and completion of testing of a Stage II vapor recovery system, the owner or operator shall submit to the Department a

registration form, as provided by the Department, which provides at a minimum the following:

1. The facility name and address,
2. Signature of the owner or operator,
3. The CARB Executive Order number, if applicable, for the Stage II vapor recovery system to be used,
4. The number of nozzles (excluding diesel and kerosene) used for motor vehicle refueling;
5. The monthly volume of motor vehicle fuel dispensed, and
6. The date of completion of installation of the Stage II vapor recovery system including the results of all functional tests as specified in Section 7 of this Chapter.

B. Upon major system replacement or modification of an existing Stage II vapor recovery system such that they are different from their approved configuration, the owner or operator shall submit to the Department information that details the changes to the information in the previous system registration and that includes the signature of the owner or operator. This information shall be submitted to the Department within thirty (30) days after completion of such replacement or modification.

11. Variance For Stage I Vapor Balance Systems

A. Those gasoline dispensing facilities that have an underground gasoline storage tank scheduled for removal after October 1, 1991 (pursuant to 38 M.R.S.A. Section 563-A) should apply prior to July 1, 1991 to the Department in writing for a variance from the October 1, 1991 compliance date specified in Section 5(B)(2) of this Chapter. Variances shall be considered on a case-by-case basis for those gasoline dispensing facilities that may have to undergo excessively expensive and premature excavation due to such complications as irregular shaped or sized fill pipes, the diameter of fill pipes less than three (3) inches, or inadequate clearance or other similar problems that require extensive excavation.

Each variance granted shall expire no later than October 1, 1994.

12. Market-Based Exemption.

Any gasoline dispensing facility may apply to the Department for exemption from the Stage II requirements of this Chapter if it can demonstrate to the satisfaction of the Department that it has installed and placed into operation Stage II vapor recovery systems pursuant to Section 4 of this Chapter in substituting facilities not otherwise subject to this Chapter. Such substituting facilities must be located in the geographic coverage specified in Section 1(A)(2) and have a total combined throughput which is greater than the throughput of the facility requesting the exemption. All substituting gasoline dispensing facilities participating in the market-based exemption are subject to all Stage II requirements specified in Section 4 (Standards for Stage II Vapor Recovery Systems), Section 7 (Testing for Stage II Vapor Recovery Systems), Section 8 (Training and Public Education), Section 9 (Recordkeeping and Reporting), and Section 10 (Registration of Stage II Vapor Recovery Systems) of this regulation.

**BASIS STATEMENT FOR JUNE 22, 1994 :** Nine counties in the State of Maine exceed the national ambient air quality standard for ozone, a ground-level smog which causes health problems in humans. Ozone is formed in part by volatile organic compounds (VOC) contained in gasoline vapors that react in the presence of sunlight. Section 182(b)(3) of the Clean Air Act Amendments of 1990 mandate the control of VOC contained in gasoline vapors that are emitted during the transfer of gasoline between gasoline storage tanks at gasoline dispensing facilities and delivery tank trucks.

All gasoline dispensing facilities located in the State are required to install submerged fill pipes on their gasoline storage tanks by May 31, 1995. Gasoline dispensing facilities with a monthly throughput of 10,000 gallons or more in any one month and with storage tanks of 250 gallons or more are required to install by May 31, 1995, a Stage I vapor control system, which is a vapor tight system of fittings and connections between the storage tank and tank truck.

This regulation will control 95% or more of the total VOC emitted during the transfer of gasoline between delivery tank trucks and storage tanks at gas stations.

The cost of submerged fill pipes is approximately \$50 per gasoline storage tank or \$100 per station. The cost to retrofit a service station with a coaxial Stage I system is approximately \$1524. In addition to the Basis Statement above, the Department has filed with the Secretary of State its response to comments received during the public comment period.

**BASIS STATEMENT FOR JULY 19, 1995 :** Section 182(b)(1) of the Clean Air Act Amendments requires that states identify and adopt strategies which will reduce 1990 VOC emissions by at least 15% to attain the National Ambient Air Quality Standard for ozone by November 15, 1996. As part of that plan, Stage II vapor recovery is required in York, Cumberland, and Sagadahoc counties since they have not attained the federal ozone standard. In order to achieve the required emission reductions, the Stage II requirements apply to facilities with an annual throughput of 1,000,000 gallons or more.

AUTHORITY: 38 M.R.S.A., Section 585, 585-A

EFFECTIVE DATE: July 11, 1994  
Amended: July 25, 1995